. . . and it has several 'aces' in the hole

A major change is planned in the Panel mill circuit, which will see the installation of a Lamix circuit for elution and precipitation. Elution is part of the ion exchange process which involves removal of uranium or other ions from loaded resins by a chemical solution.

The old system involved use of about 1.5 lbs. of nitric acid per lb. of uranium along with 0.4 lbs. of ammonia. Most of these two materials went out in the mill tailings.

The Environmental Assessment Board of Ontario thought some damage to aqueous life might occur from the presence of nitrate and ammonia effluent seeping from tailings basins. As a result, a new system is being adopted which will consist of a two-stage precipitation circuit similar to the one at Quirke. The basic difference involves use of warm 10% sulphuric acid instead of a 6% acid nitrate solution. Ground limestone is substituted for slaked lime and magnesia for ammonia.

A sophisticated tailing disposal system, costing over $8 million, will supplement environmental precautions taken in the milling process. Dam sites at either end of Strike Lake between the Panel mine-mill complex were excavated down to bedrock and all faults and fractures were grouted. An impervious plastic liner was installed with a 2-ft. thick layer of sand underneath. This, in turn, was covered with another 2-ft. layer of sand for protection. The liner consisted of 75,000 sq. ft. of Dunseal Hypalon liner with a thickness of 0.03 inches.

Preston mine

Rio Algom's associate company, Preston Mines, is being rehabilitated. Planned production will be 5,000 tpd in 1983-84 and future production could increase to 10,000 tpd depending on Ontario Hydro's demand for uranium oxide. The mine is estimated to contain about 75 million lbs. of U_3O_8.

Preston Mines was formed in 1960 when a major shareholder in Rio Algom, Preston East Dome Mines, amalgamated with Stanleigh Uranium to form the new Preston Mines. The company previously had a contract with Eldorado for delivery of 8,650,500 lbs. of uranium valued at $90,500,000. Rio Algom agreed to deliver most of the uranium oxide left in Stanleigh's contract with Eldorado when the mine was closed in 1961.

The Stanleigh mine is located two miles northeast of Elliot Lake on the south limb of the Quirke Lake trough. It adjoins the Milliken and Lacnor mines on the north side of the main ore bed.

The Milliken, Lacnor and Nordic mines are three "sleepers" that have been inactive for a number of years waiting for an increase in demand for uranium. The mines are on the south limb of the Quirke Lake trough and have approximately 50 million tons or ore reserves between them.

If a market is found for their uranium production, the Lacnor and Nordic orebodies could be mined from Milliken without reactivating their surface facilities.

Rio Algom is participating in the hard rock mining skills training program, which may herald the era of the "professional" miner. Training profiles have been developed in several areas, including general inspection, scaling, staging, drilling, rock bolting, blasting and mucking. The program is performance-based, rather than time-based and satisfactory completion depends on demonstrated performance.

Employees in the program will be issued a qualification book where the completed units are entered. This book will belong to the employee and will be a portable record of his completed training.

Seventy percent of the underground personnel at Panel and Quirke have been through the training program and 20% are currently in training (all stages).

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Canada and U.S. study exchanges of electricity

The release of a study of Canada/United States electricity exchanges is announced by federal energy, mines and resources department and the U.S. department of energy.

Electricity exchanges between the two countries were 20 billion kilowatt-hours in 1977 and 1978.

The study was initiated by the Prime Minister and the U.S. Vice-President in January, 1978, when it was agreed the two countries would examine the potential for increasing electricity exchanges.

Energy, Mines and Resources Minister Ray Hnatyshyn said that the federal government will be studying the report in order to determine the best possible approaches to reducing constraints on trade in electricity between the two nations.

The study concludes there are significant opportunities for increased international exchanges in all regions, which could result in mutual benefits such as reduced oil consumption in the production of electricity and increased system reliability. It identifies obstacles to the development of such exchanges, citing time-consuming public and regulatory review processes as hindrances.

Among recommendations both to utilities and the regulatory agencies of the two governments are: increased communication and liaison among regulatory agencies and between such agencies and the utilities; clear statements of government policies and guidelines on the regulatory processes for international electricity exchanges; appropriate action on export pricing policies to maximize opportunities and benefits; development of public information programs to explain the benefits of international electricity exchanges.

A regional approach, using information supplied by utilities in the United States and Canada, was adopted because a major purpose of the study was to obtain the utilities' views of opportunities for increased transactions. Participants in the study included regional representatives of the electric utilities near the border, federal officials of both countries and representatives of the provincial governments.

Bralorne bet idle

Bralorne Resources holds a 73.75% interest and Pacific Petroleums a 26.25% interest in two mineral leases, ML 5254 and ML 5255, in the Foster River area, Saskatchewan, covering a total of approximately 3,500 acres. No further work is planned on this ground in the immediate future.

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Rec'd Dec. 6, 1979

BOREAL INSTITUTE FOR NORTHERN STUDIES

Map courtesy of SMDC shows extensive property interests of SMDC in Athabasca Sandstone area. The V numbers shown indicate voluntary joint venture projects operated by partners. PA and such numbers as 78-76 show mandatory joint ventures operated by partners. MPP and such numbers as 5764 are SMDC operated projects.

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For Ontario Hydro

Nuclear power cheapest, safest of hard energy options

By R. W. Bartholomew*

At the present time Ontario Hydro has about 24,000 megawatts (MW) of generating capacity; 27% is hydraulic, 51% fossil and 22% nuclear – and we buy a little from our neighbors. These numbers represent installed capacity – from an energy production viewpoint more than 30% of Ontario Hydro electricity comes from nuclear power.

On our current construction program we have no hydraulic projects under way, we have only 700 MW of coal-fired generation (at Thunder Bay and Atikokan), but we have 8,400 MW of nuclear projects (a second station at the Pickering site, a second station at the Bruce site and the new Darlington GS).

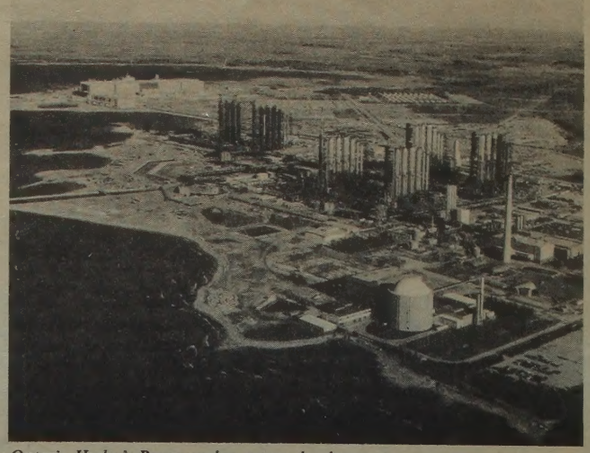
On our planning for future generating capacity in the 1990s the most probable mix will be an additional 11,500 MW of nuclear, 1,000 MW of hydraulic and a little less than 3,000 MW of coal-fired (i.e. 3 times as much nuclear as all other sources combined).

By the year 2000 more than 50% of our installed capacity will be nuclear and nearly 80% of Ontario Hydro electricity will be generated by nuclear power.

*Excerpts from a recent talk by Mr. Bartholomew, manager, generation development dept., Ontario Hydro, to the Geological Discussion Group.

It is not possible to convert energy from one form to another, on a large scale, without some considerable costs – these costs can be measured in economic terms, environmental terms and in social terms. For example, conversion of crude oil to gasoline has great capital and operating costs, considerable environmental impact and some real safety risks to society. Similarly, conversion of some energy potential to electricity, by any means, has economic, environmental and safety risk costs in varying degrees. Nuclear power is, today, for Ontario Hydro, the cheapest, the cleanest and the safest of the hard energy alternatives for producing large blocks of electrical energy.

Note, that I'm talking about large blocks of energy and, as long as we continue to want to congregate in large urban centres, we will have to plan for generating large blocks of electrical energy to satisfy our needs. The "hard energy" alternatives for electricity production include coal, oil, gas, hydraulic and nuclear. For now please accept the assumption that none of the "soft energy" options such as solar power, wind-power, tidal power, etc. will seriously meet the electrical energy needs in this century.



Ontario Hydro's Bruce nuclear power development.

Now, of these hard energy alternatives, we don't have very much more economic hydraulic power to develop in Ontario. We will continue to develop a number of smaller sites, but thermal power sources will be the main source of new electricity generation. Of the thermal sources, we can't rely on supplies of oil or gas so we must basically decide between coal and nuclear.

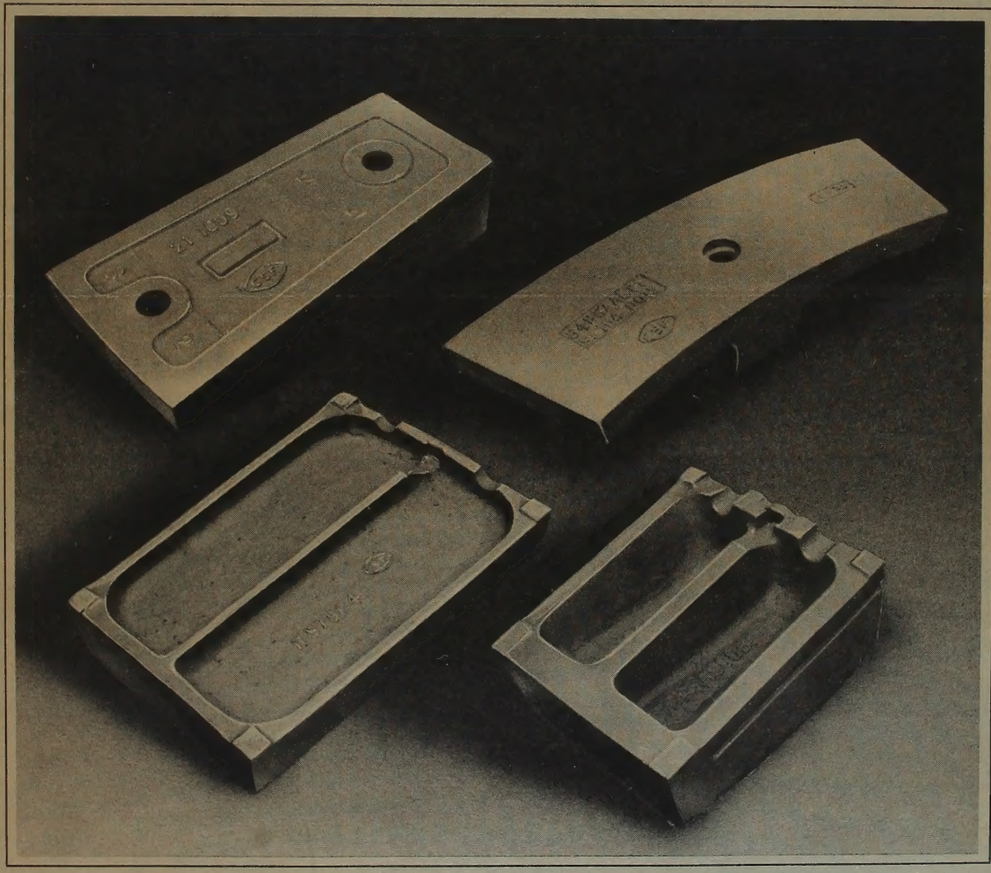
After all costs are considered, our nuclear power unit energy costs are today about half the cost of our lowest cost fossil-fuelled generation. In 1977, Pickering produced power at approximately 9 mils/kWhr – if Lambton (our most efficient fossil-fuelled plant) had run at the same capacity factor, Lambton power would have cost approximately 18 mils/kWhr.

Good news

That is good news today – but the news is even better in the future, because nuclear power is almost inflation proof. With time, and inflation, the fossil-fuelled unit energy costs rise whereas the nuclear-fuelled unit energy costs remain fairly flat. Why is this? Because of fuel costs, of course. Note that the fuel component of nuclear energy costs is very small. Even if the cost of uranium tripled the impact on electricity cost is very small, but, if the cost of coal doubles or triples, the impact on electricity costs is staggering.

Not only is CANDU nuclear power the lowest cost today and relatively inflation-proof for tomorrow

See Page C15



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Anglo associates 15 'U' projects in Saskatchewan

VANCOUVER – Anglo Bomarc Mines and related companies, **Thor Explorations, Mark V Petroleums & Mines** and **Mundee Mines,** have a total of 15 uranium projects in northern Saskatchewan. Work will be carried out on five of these during the 1979 field season.

Geochemical surveys are planned for the Duddridge Lake prospect (12,210 acres) of Thor in the Sandfly Lake area, the Walsh Lake project (12,260 acres) to the northeast held 50% by Thor and 50% by Mark V and for the McDowell Lake prospect (3,940 acres) near Wollaston Lake, held 80% by Mundee and 20% by Mark V. An Input survey and geochemical work are planned on Mar V's Calvert Lake prospect (42,449 acres) south of Black Lake on the northern rim of the basin.

Getty Oil, 35% partner in the Wheeler River project (12,800 acres) near Cree Lake, plans to begin drilling this summer. Other partners are Thor (7.5%), Anglo Bomarc (7.5%) and the Saskatchewan Mining Development Corp. (50%).

The SMDC and Anglo Bomarc are participating with Thor on the nearby Hughes Lake prospect (6,760 acres) each as to ⅓ interest. Thor and Anglo Bomarc are 50% partners in the Spreckley Lake prospect north of Black Lake. Thor and Mark V each hold 25% interest in the Seager Lake project (5,420 acres) in the Cree Lake area with SMDC holding the remaining 50%.

Mark V has 100% interest in the Foster River prospect (163,230 acres) in the Sandfly Lake area and in the Wapata Lake prospect (119,520 acres).

Thor holds 100% interest in the GM claims (160 acres) in the Uranium City area.

Anglo Bomarc's other holdings in the area include the Daley Lake (192,000 acres), the Livingstone Lake (108,160 acres) and the Fedorchuk Creek (93,440 acres) prospects.

Mundee has 100% interest in the Bernard Lake prospect (151,040 acres) in the centre of the Athabasca Basin.

Cominco has several preliminary projcts

VANCOUVER – Uranium has received increasing attention in Cominco's over-all exploration program in recent years, although all of the uranium exploration projects are still in the preliminary stage.

In 1979 reconnaissance and preliminary work will be carried out in B.C., the Maritimes and the Northwest Territories. In four cases these are in joint ventures with **E & B Explorations** of Calgary. The company has a 2,300 sq. mile prospect in the Baker Lake area, Northwest Territories, which was optioned from **Pan Ocean Oil** in 1975.